



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Cheng-Lien Chiang  
Assignee: Bridge Semiconductor Corporation  
Title: OPTOELECTRONIC SEMICONDUCTOR PACKAGE DEVICE  
Serial No.: 10/082,500 Filed: February 25, 2002  
Examiner: Chu, C. Group Art Unit: 2815  
Atty. Docket No.: BDG005-3

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COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, VA 22313-1450

**PETITION FOR WITHDRAWAL OF DRAWING OBJECTION  
FOR MISSING FEATURE IN CLAIMS 16, 26, 36 AND 46**

Dear Sir:

This Petition is filed under 37 C.F.R. § 1.181 to request that the outstanding requirement to correct the drawings for a missing feature in claims 16, 26, 36 and 46 under 37 C.F.R. § 1.83(a) be withdrawn.

**I. FACTS**

The captioned-application discloses an optoelectronic semiconductor package device and its method of manufacture.

The method includes providing semiconductor chip 110 that includes upper surface 112 and lower surface 114, where upper surface 112 includes light sensitive cell 115 and conductive pads 116 (Specification, page 8, lines 5-11 and Figs. 1A and 1B), providing metal base 120 that includes surfaces 122 and 124, central portion 126, slots 128, recessed portions 132 and 134,

non-recessed portions 136 and leads 138 (Specification, page 9, lines 8-17 and Figs. 2A and 2B), forming metal traces 144 on metal base 120, where conductive traces 150 include leads 138 and metal traces 144 (Specification, page 11, lines 6-11 and Figs. 3A and 3B), forming transparent adhesive 154 on metal base 120 and metal traces 144 (Specification, page 12, lines 21-22 and Figs. 4A and 4B), mechanically attaching chip 110 to metal base 120 using transparent adhesive 154 (Specification, page 13, lines 5-6 and Figs. 5A and 5B), forming encapsulant 156 on chip 110 and metal base 120, where encapsulant 156 includes bottom surface 160, peripheral side surfaces 162, top surface 164 and peripheral portion 166 (Specification, page 14, lines 3-4 and page 14, line 30 to page 15, line 1 and Figs. 6A and 6B), removing encapsulant 156 from laterally extending portions of slots 128 (Specification, page 15, lines 22-23 and Figs. 7A and 7B), forming protective coating 170 on metal base 120 outside encapsulant 156 (Specification, page 16, lines 9-10 and Figs. 8A and 8B), removing central portion 126 of metal base 120, thereby exposing metal traces 144 and transparent adhesive 154 (Specification, page 17, lines 7-8 and 12-13 and Figs. 9A and 9B), forming openings 176 in transparent adhesive 154 that expose pads 116 (Specification, page 18, lines 7-9 and Figs. 10A and 10B), forming connection joints 180 in openings 176 that contact and electrically connect pads 116 and metal traces 144 (Specification, page 18, line 28 to page 19, line 2 and Figs. 11A and 11B), forming transparent base 182 on the structure, where encapsulant 156 and transparent base 182 in combination form insulative housing 184 that surrounds and encapsulates chip 110 (Specification, page 20, lines 3-4 and 20-21 and Figs. 12A and 12B), singulating optoelectronic device 186 from the lead frame (Specification, page 21, lines 1-2 and 6-7 and Figs. 13A and 13B), and bending leads 138 (Specification, page 21, lines 18-20 and Figs. 14A and 14B).

Claims 16, 26, 36 and 46 recite “the insulative housing consists of the first and second housing portions.”

The Office Action dated April 10, 2003 objects to the drawings under 37 C.F.R. § 1.83(a) since the limitation in claims 16, 26, 36 and 46 “the insulative housing consists of the first and second housing portions” is not shown in the drawings.

The Response dated April 24, 2003 requested that the objection be withdrawn.

The Office Action dated July 31, 2003 maintained the objection, includes a reproduction of Fig. 12C and states as follows:

Further, Fig. 12C clearly shows that the insulative housing does not consisting of the first (156) and second (182) housing portions. Instead, Fig. 12C clearly shows the insulative housing containing the first (156), second (182) and third (154) housing portions. Thus, the limitation in claims 16, 26, 36 and 46 “the insulative housing consisting of the first and second housing portions” is not shown in the figures.

Finally, applicant argues “the second housing portion is also illustrated by the combination of transparent adhesive 154 in Fig. 4A and transparent base 182 in Fig. 12B.” This argument is not persuasive because as disclosed by applicant on page 25, lines 20 ~ 25 of the specification which clearly describes that the encapsulant (156) provides a first single-piece housing portion, the transparent base (182) provides a second single-piece housing portion, and the transparent adhesive (154) provides a third single-piece housing portion. Since applicant’s own specification clearly states that the second housing portion is the transparent base (182) and not a combination of transparent adhesive 154 and transparent base 182 in Fig. 12B, limitation in claims 16, 26, 36 and 46 “the insulative housing consisting of the first and second housing portions” is not shown in the figures.

## II. ARGUMENT

The chip is illustrated as chip 110 with upper surface 112 in Fig. 1B, the first housing portion is illustrated as encapsulant 156 in Figs. 6A and 6B, the second housing portion is illustrated as transparent base 182 in Fig. 12B, and the insulative housing is illustrated as insulative housing 184 that includes encapsulant base 156 and transparent base 182 in Fig. 12B.

Chip 110 is exposed at upper surface 112 by openings 176 after connection joints 180 are formed in Figs. 11D and 11E.

Transparent adhesive 154 is initially a polymeric resin that is deposited on the exposed portions of chip 110, metal traces 144, transparent adhesive 154 and connection joints 180 using stencil printing. The polymeric resin is compliant enough at room temperature to conform to virtually any shape, and therefore fills the remaining space in openings 176. Thereafter, the polymeric resin is cured or hardened to form transparent base 182 as a solid single-piece transparent polymeric layer. (Specification, page 20, lines 3-10.) As a result, transparent base 182 contacts upper surface 112 of chip 110 where upper surface 112 is exposed by openings 176.

The Specification elaborates on the insulative housing as follows:

The insulative housing can include a wide variety of insulative housing portions. For example, if a transparent adhesive contacts the light sensitive cell, and a transparent base contacts the transparent adhesive and is spaced from the light sensitive cell, then the encapsulant provides a first single-piece housing portion, the transparent base provides a second single-piece housing portion, the transparent adhesive provides a third single-piece housing portion, and the transparent adhesive and transparent base provide an optical window for the light sensitive cell. As another example, if a non-transparent adhesive is spaced from the light sensitive cell, and a transparent base contacts the light sensitive cell, then the encapsulant provides a first single-piece housing portion, the transparent base provides a second single-piece housing portion, and the transparent base alone provides an optical window for the light sensitive cell. As another example, if a transparent adhesive contacts the light sensitive cell, and the transparent base is omitted such that a side of the transparent adhesive opposite the chip is exposed, then the encapsulant provides a first single-piece housing portion, the transparent adhesive provides a second single-piece housing portion, and the transparent adhesive alone provides an optical window for the light sensitive cell. (Page 25, line 20 to page 26, line 3.)

Thus, the Specification does not mandate that the transparent base provides the second housing portion. As another example, the transparent adhesive provides the second housing portion.

The Examiner's assertion that the Specification requires that the transparent base provide the second housing portion is clearly erroneous. Likewise, the Examiner's assertion that the Specification precludes the transparent adhesive and transparent base from providing the second housing portion is clearly erroneous.

#### **Claim 16**

An insulative housing that consists of encapsulant 156 (as the first housing portion) and transparent adhesive 154 and transparent base 182 (as the second housing portion) meets the limitations of claim 16 since claim 11 recites "a second transparent insulative housing portion that contacts the first housing portion and the light sensitive cell and is spaced from the lower surface" and the combination of transparent adhesive 154 and transparent base 182 meets these limitations. The Specification does not preclude characterizing the combination of transparent adhesive 154 and transparent base 182 as the second housing portion, particularly since the Specification provides examples in which the second housing portion is characterized by different features.

#### **Claim 26**

An insulative housing that consists of encapsulant 156 and transparent base 182 meets the limitations of claim 26 since claim 21 recites "the second housing portion contacts the upper surface, is farther from the bottom surface than the lower surface is from the bottom surface, provides at least a portion of the top surface and is transparent" and transparent base 182 meets these limitations.

#### **Claim 36**

An insulative housing that consists of encapsulant 156 (as the first housing portion) and transparent adhesive 154 and transparent base 182 (as the second housing portion) meets the limitations of claim 36 since claim 31 recites "the second housing portion is a single-piece or double-piece that provides a central portion of the top surface within the peripheral portion of the top surface, contacts the first housing portion, the light sensitive cell and the conductive trace, is spaced from the lower surface, is farther from the bottom surface than the lower surface is from

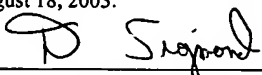
the bottom surface, is transparent and is exposed” and the combination of transparent adhesive 154 and transparent base 182 meets these limitations. The Specification does not preclude characterizing the combination of transparent adhesive 154 and transparent base 182 as the second housing portion, particularly since the Specification provides examples in which the second housing portion is characterized by different features.

#### **Claim 46**

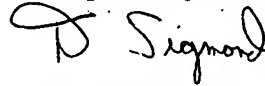
An insulative housing that consists of encapsulant 156 and transparent base 182 meets the limitations of claim 46 since claim 41 recites “a second insulative housing portion that covers the light sensitive cell and is transparent” and transparent base 182 meets these limitations.

Therefore, Applicant requests that these objections be withdrawn.

Please charge any fee due under this Petition to Deposit Account No. 502178/BDG005-3.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on August 18, 2003.	
	<u>8, 18, 03</u>
David M. Sigmond Attorney for Applicant	Date of Signature

Respectfully submitted,



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